



**SELF** *power*  
Synchronous **Eco** Line-start Friendly

**SELF-STARTING SYNCHRONOUS MOTOR**

**A NEW DIMENSION OF EFFICIENCY  
SMALLER OVERALL DIMENSIONS AND SAME POWER**



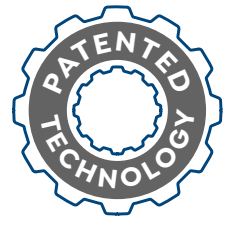
**MOTOVARIO**<sup>®</sup>

HEART OF MOTION

a TECO Group company



The SELF Power motor is an ecological hybrid electric motor halfway between an asynchronous motor and a reluctance motor. After an asynchronous start-up, the motor synchronizes with the working frequency and runs synchronously at constant speed (without encoder) regardless of the load.



The rotor has an advanced magnet-less geometry that optimizes performance and increases power density compared to a standard asynchronous motor.

The innovative design of the rotor, the squirrel cage and the absence of magnets make this motor a unique product on the market.

## BENEFITS

- High energy efficiency
- Accurate speed without encoder
- Simple synchronization: multiple Self-Power motors powered by a single inverter
- Interchangeable with asynchronous motors
- Lower temperature on bearings
- Less maintenance
- NO magnets

more **+ operating hours**



fewer **- raw materials**



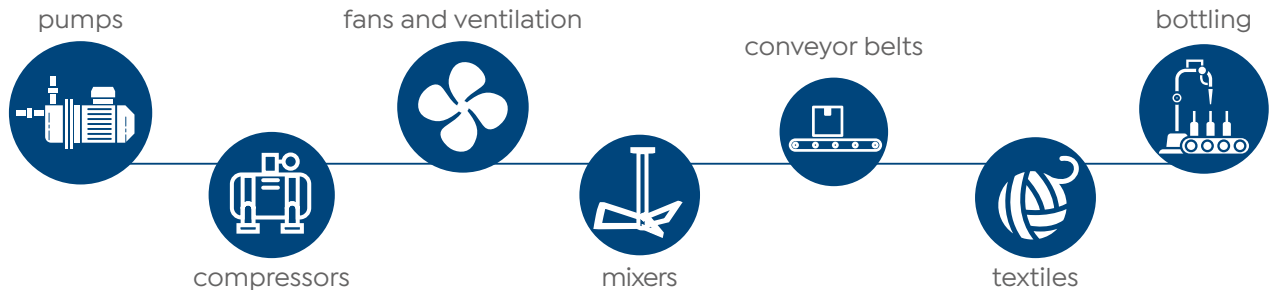
smaller **- overall dimensions**



example

Asynchronous Motor - TP Series TP 100LA4-2.2 kW-4 poles-IE3	Size 100
New SELF POWER Motor - TP-SL Series TP-SL90LM4-2.2 kW-4 poles-IE3	Size 90L

## THE BEST PERFORMANCE FOR YOUR APPLICATIONS



### Smaller overall dimensions

A lighter motor is easier to handle and install on the machine.

### Easy to use

A single inverter can easily control multiple SELF POWER motors.

### Less material

Lower environmental impact. In future, EU regulations and standards, which are already being developed, will reward this aspect.



### Better speed control

Some applications require a rigorously constant speed.

A V/f scalar inverter can be used to accurately select the speed by simply setting the power supply frequency. The motor does not require an encoder. With the asynchronous motor, the same result can only be achieved with a vector inverter backdriven by the encoder, with a considerable increase in cost.



### Greater reliability

Lower temperatures for the bearings and windings ensure greater reliability and durability. The design allows for a quieter motor, leading to a better operating environment.

# TECHNICAL DATA

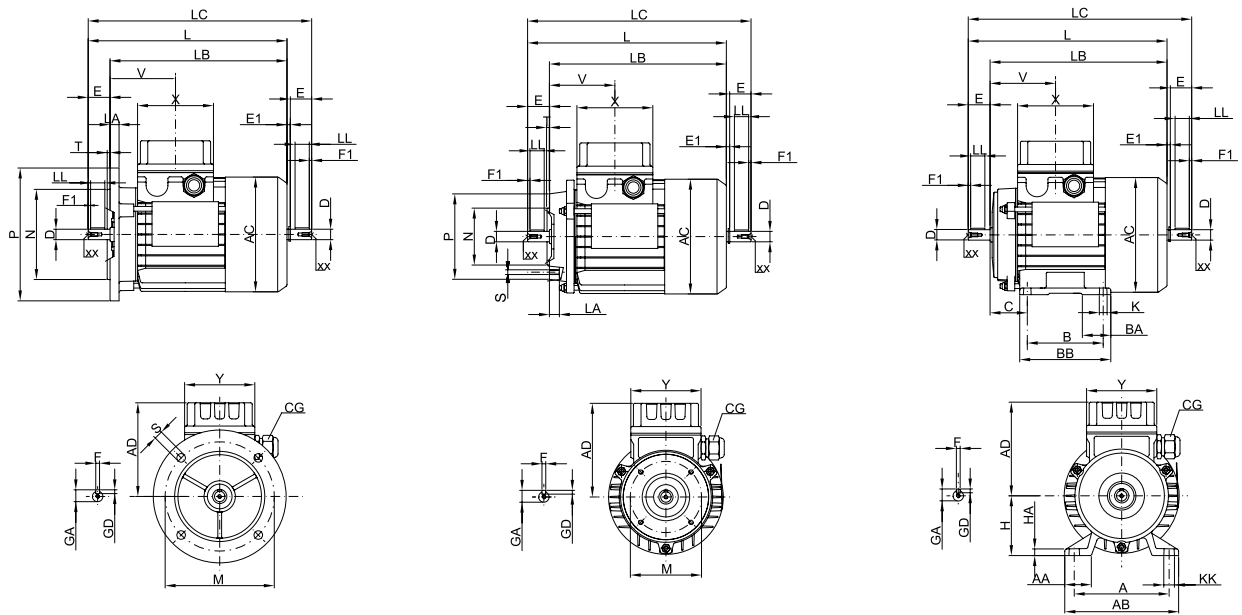
## PERFORMANCE

TP-SL TBP-SL 4 Poles 400V 50Hz																					
$P_n$ [kW]	Size	$n_n$ [min <sup>-1</sup> ]	$I_n$ [A]	$M_n$ [Nm]	$\eta\%$ (4/4) limit	$\eta\%$ (4/4)	$\eta\%$ (3/4)	$\eta\%$ (2/4)	$\cos\Phi_n$	$\frac{M_s}{M_n}$	$\frac{I_s}{I_n}$	$\frac{M_{max}}{M_n}$	$\frac{M_{po}}{M_n}$	$\frac{J_{Lmax}}{J_T}$ 1) $\frac{J_T}{a M_n}$ 2)	$J_T$ [10 <sup>-4</sup> ×kgm <sup>2</sup> ]	$W_T$ [kg]	$Z_0$ [10 <sup>3</sup> ×1/h]	$M_B$ [Nm]			
0.75	<b>80B4</b>	1500	1.86	4.8	<b>IE3 82.5</b>	83.0	82.5	80.5	0.70	2.6	5.4	2.7	1.8	4.5 4.3	30.7 32.3	11.2 14.7	7.1	15			
1.1	<b>90S4</b>	1500	2.67	7.0	<b>IE3 84.1</b>	85.0	84.5	82.3	0.70	2.7	5.6	2.7	1.9	5.0 4.5	32.3 35.8	14.1 17.6	5.0	13			
1.5	<b>90L4</b>	1500	3.6	9.5	<b>IE3 85.3</b>	85.5	85.3	83.2	0.70	3.1	5.6	2.7	1.9	6.0 5.5	37.5 41.0	15.9 21.5	4.0	26			
2.2	<b>90LM4</b>	1500	5.2	14.0	<b>IE3 86.7</b>	86.7	86.2	83.7	0.70	3.0	6.1	2.9	2.0	5.0 4.6	47.0 50.5	19.3 24.9	3.2	40			

### Symbols, units of measurement and description

$P_n$ [W]	Rated output [kW]	$M_{p.o.} / M_n$	Pull-out torque / rated torque ratio
$n_n$ [rpm]	Rated speed [rpm]	$J_{Lmax} / J_T$	Maximum load inertia / motor inertia ratio (maximum start-up inertia at rated torque)
$I_n$ [A]	Rated current [A]	$J_T$ [kg×m <sup>2</sup> ]	Moment of inertia of motor [10 <sup>-4</sup> kg×m <sup>2</sup> ] 1) without brake 2) with brake (MS - FM)
$M_n$ [Nm]	Rated torque [Nm]	$W_T$ [kg]	Motor weight (B5 version) [kg] 1) without brake 2) with brake (MS - FM)
$\eta\%$	Rated efficiency % (limit: minimum value required by the standard; 4/4, 3/4, 2/4: rated output fraction)	$Z_0$ [1/h]	Maximum starting frequency per hour with no load [1/h]
$\cos\Phi_n$	Rated power factor	$M_B$ [Nm]	Braking moment [Nm]
$M_s / M_n$	Starting torque / rated torque ratio		
$M_{max} / M_n$	Maximum torque / rated torque ratio		
$I_s / I_n$	Starting current / rated current ratio		

## DIMENSIONS



Pn [kW]	AC	AD	L	LB	X	Y	V	LC	Shaft end					Key			Cable gland				
									D	E	E1	xx	F1	GA	F	GD	LL	CG	min	max	
<b>80B4</b>	<b>0.75</b>	158	121.5	272.5	232.5	80	74	78	314	19 j6	40	1.5	M6x16	5	21.5	6	6	30	M20x1.5	6	12
<b>90S4</b>	<b>1.1</b>	173	129.5	298	248	98	98	89.5	349.5	24 j6	50	1.5	M8x19	5	27	8	7	35	M25x1.5	13	18
<b>90L4</b>	<b>1.5</b>			323	273				374.5												
<b>90LM4</b>	<b>2.2</b>			356	306				407.5												

B5	M	N	P	LA	S	T
<b>80</b>	165	130	200	12	11	3.5
<b>90</b>	165	130	200	12	11	3.5

B14	M	N	P	LA	S	T
<b>80</b>	100	80	120	10.5	M6	3
<b>90</b>	115	95	140	11.5	M8	3

B3	A	AA	AB	KK	B	BB	BA	K	C	H	HA
<b>80</b>	125	56.5	156	19.5	100	122	26	9.5	49	80	11
<b>90S</b>	140	56	172	12	100	136	33	8.5	54	90	11
<b>90L</b>	140	57	172	12	125	155	33	8.5	54	90	13

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